

Application No.: 09/725,156

Docket No.: 00VE12.25

REMARKS**Introduction**

The Specification and Abstract of the Disclosure are amended to address formal issues raised by the Examiner. The claims are amended to address formal issues raised by the Examiner under 35 U.S.C. §112 ¶2. Claims 1, 5, 6, 7, 10, 11 and 15 are amended to more clearly distinguish the invention over the applied art. The amendments emphasize features of at least one embodiment of the invention wherein the remotely located PVDs convert a digital signal to an analog POTS signal that is then provided to a plurality of NIDS located at respective subscriber premises. The description of this feature can be found in the disclosure as filed at, for example, page 6, lines 14 – 16, Page 13, lines 20 – 23. Page 14, lines 4 -5 and 18 -21, and Page 15, lines 2 – 4. As described and shown, this conversion to POTS is performed within the network, i.e., on the network side or “prior to” the network interface device (NID) used to demarcate network facilities from customer premises equipment (CPE).

Objection to the Drawings

The Examiner objects to the Drawings under 37 CFR 1.83(a), asserting that certain features of the invention which are not shown must be shown or the feature(s) must be canceled from the claim(s), these features including a) the digital subscriber line on all drawings when referenced in the specification, and b) remote DSLAM Terminal. The objection is respectfully traversed.

37 CFR 1.83(a) only requires that the “drawing” show every feature of the invention specified in the claims, not that “every drawing” show “every feature”:

The drawing in a nonprovisional application must show every feature of the invention specified in the claims. However, conventional features disclosed in the description and claims, where their detailed illustration is not essential for a proper understanding of the invention, should be illustrated in the drawing in the form of a graphical drawing symbol or a labeled representation (e.g., a labeled rectangular box).

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The features identified by the Examiner are found in the drawings taken together as a whole. For example, the digital subscriber line (DSL) is depicted in Figure 2: "the DSL circuits from DSLAM 142 are then routed to a power/line shelf 152 which provides appropriate DC power for remote equipment including utility pole mounted PVD 293 via MDF 120 and intermediate SAI 260" (see paragraph 0035) and in Figure 7 via the 50 pair cable: "DSLAM 722 provides 48 individual DSL circuits to individual customers with multi-channel requirements" (see paragraph 0044 of the published application, U. S. Patent Application Publication US 2002/0101851). Similarly, the remote DSLAM is shown in Figure 4 (element 420) and Figure 6 (elements 616, 622, 628 and 634).

Accordingly, no amendment of the drawings is required and withdrawal of the outstanding objection is respectfully requested.

Objections to the Specification

The Specification is amended to address formal issues by the correction of typographical errors identified by the Examiner at pages 12 and 13 of the specification. The Abstract is amended to conform with the maximum length requirements of MPEP §608.01(b).

The objection based on the asserted inadequacy of the disclosure of PVD operations is respectfully traversed. In connection with the PVD, the Examiner takes the position that the specification fails to adequately describe its operation including how it interacts with an NID and whether it is packet, digital or an analog connection. However, as such operations are well known and understood by those of ordinary skill to whom the disclosure is directed, including such details is both unnecessary and superfluous. The operation of these widely commercially available PVDs was well known at the time the application was filed thereby making further explanation unnecessary, and because the specification described providing at least POTS (i.e., analog) service (see, e.g., paragraph 0035 of the published application).

35 U.S.C. 112 requires the specification to be enabling only to a person "skilled in the art to which it pertains, or with which it is most nearly connected." In general, the pertinent art should be defined in terms of the problem to be solved

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rather than in terms of the technology area, industry, trade, etc. for which the invention is used.

The specification need not disclose what is well-known to those skilled in the art and preferably omits that which is well-known to those skilled and already available to the public. In re Buchner, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991); Hybritech, Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986), cert. denied, 480 U.S. 947 (1987); and Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co., 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984).

M.P.E.P. 2164.05(a).

For the reasons given, the specification and Abstract are considered to be fully compliant with the requirement of the applicable Patent Laws and Rules and withdrawal of the outstanding objections thereto is respectfully requested.

Claim Objections

The Examiner objects to claim 18 as failing to further limit the subject matter of previous claims:

... Claim 18 limitation "further comprising a main distribution frame and multi-line protector block does not limit parent claim 17, where DSLAM is connected to the digital switch with a fiber optic cable.

Office Action of June 17, 2004 (Paper No. 9) at page 3.

Claim 18 recites "[t]he telephone system according to claim 17 further comprising a main distribution frame and multi line protector block." See, for example, Figures 1 – 3 showing main distribution frame (MDF) 120 within CO 100 and Figures 6 and 6 depicting protector blocks 638 and 728, respectively. As neither base claim 10 nor intervening claims 16 and 17 recite the structure of claim 18, the basis of the objection is unclear and clarification is requested or withdrawal of the outstanding objection is requested.

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Claim Rejections – 35 U.S.C. §112 ¶1

The Examiner takes the position that the disclosure is incomplete for the reasons stated at page 3 and 4 in paragraph 4, i.e.:

Regarding claim 1, how to complete calls from said PVDs to subscribers over respective copper loop facilities connecting said PVDs to telephone equipment of said subscribers.

Regarding claim 4, how to install DSL at one or more remote DSLAM terminals.

Regarding claim 6, how to terminate DSL circuits at respective PVDs located at remote DSLAM terminals.

Regarding claim 10, how to provide voice telephone service to subscribers through respective PVD and NID.

The rejections are respectfully traversed, the disclosure being fully enabling of the claims in view of the knowledge of one skilled in the art. All of these elements of the invention were well known to those of ordinary skill in the art at the time the application was filed; further detail was not necessary nor required by 35 USC §112 ¶1. To the contrary, “[t]he specification ... preferably omits that which is well-known to those skilled and already available to the public.”. M.P.E.P. 2164.05(a) citing *In re Buchner*; *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*; and *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co., supra*.

The steps and signaling required to complete a call from a Packet Voice Device (PVD) [located at and connected to a DSLAM] to subscribers were well known as evidenced by, inter alia, commercial availability of PVDs (or IADs) as described at paragraph 0033, further description of the PVD being contained in paragraphs 0035, 0036, and 0039-0044 of the published application. Similarly, how to install and terminate DSL was also well known, as was how to provide telephone service to subscribers through a PVD and a NID. Accordingly, these alleged bases for the rejection are also unfounded.

For the reasons presented, withdrawal of all rejections of the claims under 35 USC §112 ¶1 is respectfully requested.

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Claim Rejections – 35 U.S.C. §112 ¶2

Claims 1-22 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The rejections are believed overcome by the amendment to the claims or are respectfully traversed for the following reasons.

Addressing Claim 1, the Examiner takes that position that:

“plural DSL services between a telephone facility and a remote facility” is unclear, because plural DSL services can be interpreted as plural DSL systems between a telephone facility and a remote facility, or plural services on each DSL channel between the facilities, or plural DSL channels between the facilities.

The claim is not rendered indefinite merely because the language of the claim may encompass several configurations. Rather, the claim is rendered broader than it otherwise would be if the language covered only one configuration, or covered fewer configurations than the several encompassed.

Breadth of a claim is not to be equated with indefiniteness. In re Miller, 441 F.2d 689, 169 USPQ 597 (CCPA 1971). If the scope of the subject matter embraced by the claims is clear, and if applicants have not otherwise indicated that they intend the invention to be of a scope different from that defined in the claims, then the claims comply with 35 U.S.C. 112, second paragraph.

M.P.E.P. 2173.04.

In connection with claim 6, the Examiner holds that “terminating said DSL circuits at respective PVDs located at remote DSLAM terminals” is indefinite, because it is unclear what (DSL circuits or PVDs) is located at remote DSLAM terminals.” While it appears clear to the undersigned that the reference is to the PVDs, the claim has been amended to address this issue. Claims 10 and 15 are amended to correct a typographical error referring to a “voice switch” as opposed to the previously recited “digital switch” and to adopt language preferred by the Examiner by use of the term “coupled” to describe elements that may be indirectly connected via an intermediate device. It is believed that these changes overcome the outstanding rejections of claims 10 and 15.

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For the reasons presented, all claims are now considered to be in proper form and withdrawal of the rejections under 35 U.S.C. §112 ¶2 is respectfully requested.

Claim Rejections – 35 U.S.C. §§102(e) and 103(a)

Claims 1-12, 15-17, 21 and 22 stand rejected) under 35 U.S.C. 102(e) as being anticipated by Frankel (US 6,639,913). According to the Examiner, "Frankel teaches a method for providing voice grade service to a plurality of subscribers using existing telephone loop facilities [by] provid[ing] plural DSL services between a telephone facility (central switching facility 30 on Fig. 8) and a remote facility (RDT 500 on Fig. 8 and 12:23-37) using respective DSL circuits (DSL lines 24 on Fig. 8 and 4:22-24); Assigning a plurality of subscriber lines to each of the DSL circuits (lines connecting subscribers TD 10 to RDT 500 on Fig. 8)". In connection with claim 5 and the network interface device (NID) recited therein and, by the present amendment, now incorporated into the pending independent claims, the Examiner appears to take the position that remote digital terminal (RDT) 100 satisfies the requirement for a NID located at the subscriber's location: "[r]egarding claim 5, Frankel teaches installing DSL at the ends of drop wires (RDT 100 utilizing existing wiring 25 on Fig. 1) wherein the other ends of drop wires are connected to NIDs at customer premises (remote digital terminal at the customer site 16:3-10)."

The rejection is respectfully traversed in view of the amendments to the claims and for the following reasons.

Initially, it is believed that Frankel's RDT is not the equivalent of, nor can it anticipate or render obvious, the NID of the instant claims. Frankel's RDT is clearly CPE; it is not a part of the network and therefore cannot be considered to be a point of demarcation between the network and customer premises equipment:

Network Interface Device (NID) - The equipment at the Rate Demarcation Point on an end user's premises at which a telephone company's responsibility for the provision of services ends. The NID is the point of demarcation between the loop and an end user's inside wire, which grounds the unbundled loop.

Glossary of Telecom Terms (<http://www22.verizon.com/wholesale/glossary/0,2624,N,00.html>)

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The Network Interface Device (NID) is the official demarcation point between the regulated telephone company network and the end user's private network. All wiring and user devices in the private network (i.e., a modem) are controlled by the owner, not the NSP. In the United States, if an NSP wants to provide equipment beyond the network demarcation, the provider must first have permission from any regulators involved and the customer must agree. The NID may also be called the network termination unit or demarc. For most single-family homes, some townhouses, and condos the NID consists of an external gray box mounted on the side of the home.

BellSouth Website (http://www.bellsouth.com/broadband/dsl_solutions/discover/answers/#What%20is%20a%20NID)

Clearly, RDT 100 is not a NID and, more importantly, it is on the wrong side of any NID to anticipate or render obvious the claims of the instant application. This is because a fundamental difference between Frankel's system and that of the present application is that Frankel provides digital connectivity to the customer premises; the customer (not the network) must have an appropriate conversion device such as Frankel's RDT 100. Applicants' invention instead has the conversion equipment WITHIN its network so that no special customer premise equipment (CPE) is required. To the contrary, the methods and systems according to the pending claims makes the use of DSL completely transparent to the customer as intended. That is, the present invention provides "pair gain", providing additional service to an area over existing wire facilities while patching back into and using the existing standard POTS drops to the customer premises. Thus, according to Applicants' invention, the conversion from digital to [analog] POTS is performed IN THE NETWORK, on the network side of the NID, NOT at the customer premise and NOT with CPE.

For example, claim 1 as amended, reads as follows:

A method of providing voice grade telephone service to a plurality of subscribers using existing telephone loop facilities, comprising the steps of:
 configuring said telephone loop facilities to provide plural digital subscriber line (DSL) services between a telephone facility and a remote facility using respective DSL circuits;
 assigning a plurality of subscriber lines to each of said DSL circuits;
 routing calls terminating at a central office to an associated one of said DSL circuits;
 transmitting calls on said DSL circuits to respective Packet Voice Devices (PVDs) located at said remote facility;

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converting said calls on said DSL circuits to respective analog Plain Old Telephone Service (POTS) signals by and at said PVDs;
transmitting said POTS signals to respective NIDs located at a plurality of premises of respective nearby ones of said subscribers over respective copper loop facilities connecting said PVDs to said NIDS and therethrough to respective telephone equipment of said subscribers; and
completing calls from said PVDs to said nearby ones of said subscribers.

Frankel, not being directed to solving the problems identified by the Applicants of the present invention fails to describe or render obvious such a method including conversion of DSL to POTS by a remote PVD and transmission of the POTS signal to a subscriber through a NID located at the subscriber's premises. Applicants invention is directed to solving problems extent in the prior art as described in the Background section of the instant application and further in the Brief Description of the Invention:

The present invention overcomes the above noted problems by providing systems and call processing methodologies that extend the useful life of existing telephone local loop facilities without requiring new or modifications to existing customer provided equipment or other subscriber facilities. The invention overlays advanced digital technology onto the installed feeder and distribution cable portion of the outside plant to obtain additional voice circuits. Interface equipment proximate existing drop wire inter-connect points and converts digitized voice circuits back to analog signaling together with appropriate POTS signaling and power connections. The interface equipment is centrally powered along with other portions of the outside plant so that operation is independent of customer and commercial power sources. Power may be provided by batteries located at the associated central office or by locally provisioned, non-interruptible, battery-backed-up power sources.

Frankel does not address this problem and therefore fails to describe or suggest the subject matter of independent claim 1. Accordingly, the subject matter of claim 1 is now considered to be allowable thereover.

Independent claims 6 and 10 recite similar limitations and are considered to be patentable over Frankel for, inter alia, the reasons present above in connection with claim 1. Specifically, claim 6 as amended recites:

In an existing switched telephone network comprising a plurality of central offices connected by interoffice facility trunks, each central office

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providing service to nearby subscribers connected by local loop facilities, the local loop facilities including a feeder distribution system connecting the central offices to respective serving area interfaces and local drops connecting respective subscribers to said serving area interfaces, a method of expanding the capabilities of the feeder distribution to accommodate additional subscribers, comprising the steps of:

configuring said feeder/distribution system to provide plural digital subscriber loops (DSL) between said central offices and said serving area interfaces using respective DSL circuits;

terminating said DSL circuits at respective PVDs, said PVDs located at remote DSLAM terminals;

connecting respective analog Plain Old Telephone Service (POTS) signal outputs of said DSLAM terminals to existing copper loop facilities providing connectivity with distant network interface devices (NIDs) remotely located at respective premises of said subscribers; and

assigning a plurality of subscriber lines to each of said DSL circuits.

Claim 10 recites:

A telephone system comprising:

network switching facilities including

(i) a digital switch providing telephone service to a plurality of subscribers,

(ii) a digital subscriber line access multiplexer (DSLAM) coupled to said digital switch;

local loop transmission facilities connected to said DSLAM; and

a PVD connected (a) to said DSLAM via said local loop transmission facilities and (b) to a plurality of copper loops, each of said copper loops terminated at respective network interface devices (NIDs) associated with and remotely located at the premises of respective ones of said subscribers for providing analog POTS voice telephone service to said subscribers.

Frankel fails to describe or suggest such a configuration and therefore fails to defeat patentability of those claims.

Dependent claims 2-5, 7-9 and 11 – 22 recite additional subject matter not found in the art of record in the claimed combinations and are considered to be allowable independent of the claims from which each depends.

For the reasons presented above, all pending claims are considered to be distinguishable over and non-obvious in view of the applied art. Reconsideration and withdrawal of the rejections imposed under 35 U.S.C. §§102(e) and 103(a) are respectfully requested.

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Conclusion

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

A petition and fee for a one month extension of time forms part of the present response. If any further or other extension of time under 37 C.F.R. §1.136 is required the petition is hereby made. Further, if any other or additional fee is due, please charge our Deposit Account No. 07-2347 from which the undersigned is authorized to draw and please credit any excess fees to such deposit account.

Respectfully submitted,



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Date: November 17, 2004